

31. (Twice Amended) A removable electrical interconnect apparatus for removably engaging electrically conductive pads on a semiconductor substrate having integrated circuitry fabricated therein, the apparatus comprising:

a substrate; and

an engagement probe projecting from the substrate to engage a single conductive pad on a semiconductor substrate having integrated circuitry formed in the semiconductor substrate, the engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line configured to removably engage the single conductive pad of the substrate comprising operable integrated circuitry and to removably engage another single conductive pad of another substrate also comprising operable integrated circuitry.

32. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed on a projection from the substrate.

33. The removable electrical interconnect apparatus of claim 31 wherein the knife-edge line projects from a penetration stop plane.

34. The removable electrical interconnect apparatus of claim 31 wherein the knife-edge line projects from a penetration stop plane, the knife-edge line having a tip and a base at the penetration stop plane, the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

*Cont'd  
for P 17*

35. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed on a projection from the substrate, the knife-edge line projecting from a penetration stop plane on the projection.

*Cf  
Cont*

36. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed on a projection from the substrate, the knife-edge line projects from a penetration stop plane on the projection, the knife-edge line having a tip and a having a base at the penetration stop plane, the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

37. The removable electrical interconnect apparatus of claim 31 wherein outermost portions of the electrically conductive apexes constitute a first electrically conductive material, and wherein the conductive pads for which the apparatus is adapted have outermost portions constituting a second electrically conductive material; the first and second electrically conductive materials being different.

38. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed from a semiconductor substrate.

39. The removable electrical interconnect apparatus of claim 31 wherein the knife-edge line includes an outer conductive layer.

*Cont'd  
Sub D1* 7 40. The removable electrical interconnect apparatus of claim 31 wherein the outer surface includes plural knife-edge lines configured to engage the single conductive pad.

*cl  
Cont* 41. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed from a semiconductor substrate and the outer surface includes plural knife-edge lines configured to engage the single conductive pad.

42. The removable electrical interconnect apparatus of claim 31 wherein the engagement probe is formed from a semiconductor substrate and the outer surface includes plural knife-edge lines configured to engage the single conductive pad and the knife-edge lines include outer conductive layers.

43. Canceled.

44. Canceled.

45. Canceled.

46. Canceled.

47. Canceled.

48. Canceled.

49. Canceled.

50. Canceled.

51. Canceled.

52. Canceled.

53. Canceled.

54. A removable engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line sized and positioned to engage a single conductive pad; and

wherein the knife-edge line projects from a penetration stop plane.

55. The removable engagement probe of claim 54 wherein the at least one knife-edge line is formed on a projection from a substrate.

56. The removable engagement probe of claim 54 wherein the outer surface comprises a plurality of apexes having respective tips and bases, and the penetration stop plane is intermediate the bases and substantially parallel to a surface of a substrate.

57. The removable engagement probe of claim 54 wherein the knife-edge line projects from a penetration stop plane, the knife-edge line having a tip and a base at the penetration stop plane, the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

58. The removable engagement probe of claim 54 wherein the knife-edge line is formed on a projection from a substrate, the knife-edge line projecting from a penetration stop plane on the projection.

Cont'd  
for 100 59. The removable engagement probe of claim 54 wherein the knife-edge line is formed on a projection from a substrate, the knife-edge line projects from a penetration stop plane on the projection, the knife-edge line having a tip and a having a base at the penetration stop plane, the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

60. The removable engagement probe of claim 54 wherein outermost portions of the electrically conductive apexes constitute a first electrically conductive material, and wherein the conductive pads for which the probe is adapted have outermost portions constituting a second electrically conductive material; the first and second electrically conductive materials being different.

61. The removable engagement probe of claim 54 wherein the probe is fabricated from a semiconductor substrate.

62. (New) The removable electrical interconnect apparatus of claim 31 wherein the knife-edge line is sized and positioned to extend elevationally above an uppermost surface of the substrate.

63. (New) The removable electrical interconnect apparatus of claim 32 wherein the projection includes a surface substantially parallel to a surface of the substrate.

Cont'd  
for P2 7  
64. (New) The removable engagement probe of claim 54 wherein the knife-edge line projects elevationally above an uppermost surface of a substrate which defines the penetration stop plane.

65. (New) The removable electrical interconnect apparatus of claim 55 wherein the projection has a surface substantially parallel to a surface of a substrate which defines the penetration stop plane.

C1  
Conclude  
66. (New) A removable electrical interconnect apparatus for removably engaging electrically conductive pads on a semiconductor substrate having integrated circuitry fabricated therein, the apparatus comprising:

a substrate; and

an engagement probe projecting from the substrate to engage a single conductive pad on a semiconductor substrate having integrated circuitry formed in the semiconductor substrate, the engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line sized and positioned to extend elevationally above a surface of the substrate to engage the single conductive pad;

wherein the engagement probe is formed on a projection from the substrate, the knife-edge line projects from a penetration stop plane on the projection, the knife-edge line having a tip and a having a base at the penetration stop plane, the tip being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.